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ABSTRACT

Studies on mass communication and national development and studies of press freedom were reviewed to construct a macro-level theoretical model of press freedom development including seven key concepts: availability of resources, urbanism, educational level, mass media development, accountability of governors, stress on government, and government control of the press. The causal linkages suggested in this model were tested with data from 137 countries collected at four different times (1950, 1960, 1965, and 1966). Heise's path analytic causal model was used to infer the directions and signs of the causal influences among the key concepts. The results indicated consistent moderate support across time periods and regions for two of the seven predicted causal relations: increased mass media development resulted in greater accountability of governors and increased accountability of governors led to less government control of the press. (Author/RB)

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THE PRESS AND GOVERNMENT RESTRICTION: A CROSS-NATIONAL STUDY OVER TIME

By

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Prepared for presentation to the International Communication Division, Association for Education in Journalism, San Diego, California, August 18-21, 1974. This research was completed at the School of Journalism, University of North Carolina at Chapel Hill, where the author was a doctoral student in the mass communication research program.

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Freedom of expression, and particularly freedom of the press, has been widely discussed and debated by philosophers, lawmakers, journalists and laymen for centuries. Arguments about press freedom generally revolve around two major issues: (1) what is it, and (2) how much of it can be tolerated.

In Western countries, the importance of press freedom (usually defined as freedom from government controls) has been emphasized since the publication of John Milton's Aeropagitica in 1644, and is still being stressed today. The commonly expressed rationale for a minimum of restraints on freedom of expression is that the truth of any matter may be approached most closely only by allowing the free competition of various ideas. The Hutchins Commission summed up this argument in 1947:

> Civilized society is a working system of ideas. It lives and changes by the consumption of ideas. Therefore it must make sure that as many as possible of the ideas which its members have are available for its examination. It must guarantee freedom of expression, to the end that all adventitious hindrances to the flow of ideas shall be removed. . . . Valuable ideas may be put forth first in forms that are crude, indefensible, or even dangerous. They need the chance to develop through free criticism as well as the chance to survive on the basis of their ultimate worth. Hence the man who publishes ideas requires special protection.[1]

Even the Soviet definition of press freedom, as set forth by Lenin and elaborated by Stalin and Khrushchev, emphasizes the desirability of the free flow of ideas, if only formally. In 1917, Lenin wrote:

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> "Freedom of the press" of a bourgeois society consists in freedom of the rich systematically, unceasingly and daily in the millions of copies to deceive, corrupt and fool the exploited and oppressed masses of the people, the poor. It is asked, is it possible to fight this howling evil and how? The means is state monopoly of private advertising in newspapers. . . . They will say: But this is destruction of freedom of the press. Not true. This would enlarge and restore freedom of the press. For freedom of the press signifies: all opinions of all citizens may be stated.[2]

However, as Hopkins has pointed out, a fundamental flaw in the Soviet conception of press freedom is that while the press is free from those abuses arising from private ownership, it has become subject to an authoritarian political party under Lenin, Stalin and Khrushchev. Under this party supervision, the flow of ideas has become more restricted than in countries where control is exercised by wealthy individuals or corporations.[3] In addition, it seems likely that both Milton and Lenin had the same thing in mind when they wrote on freedom of expression--the belief in such freedom for their ideas, but not for those of Catholics or Capitalists.

Although there is by no means agreement on a precise definition of press freedom, there seems to be a realization that such freedom varies across time and across nations of the world. In the last 15 years, several scholars have suggested that this variation may be systematically related to changes in other variables, such as stress on a government, accountability of a nation's governors to those governed, rate of population increase, legislative-executive structure of a nation, daily newspaper circulation, level and rate of social - economic development, heterogeneity of a society, and religion of an area.[4]

Although these various scholars have suggested correlational relationships between the above variables and the amount of control of

the press, all have scrupulously avoided trying to determine possible causal links among such variables. Raymond Nixon, in his 1960 article, cites Daniel Lerner on this very point:

> . . . a communication system is both index and agent of change in a total social system. This avoids the genetic problem of causality, about which we can only speculate, in order to stress correlation hypotheses which can be tested.[5]

And in his 1965 article on press freedom, Nixon discusses th positive correlations he found between press freedom and three other variables (income per capita, percent of adults literate, and daily newspaper circulation per 100 population), and then concludes:

> It is not intended to imply that there is a causal relationship between any of these four variables and press freedom, but simply that there is a close relationship and an interaction between them. In other words, the higher the level of socio-economic development in a country, the greater the likelihood that press freedom will exist; the lower the level of development, the greater the chance that press control will be found.[6]

Although Lerner, Nixon, Lowenstein and others prefer not to talk about causal relationships among the variables they study, their conclusions usually imply such relations.

The purpose of this study is to go beyond the correlational analyses of earlier studies to an analysis of the causal relationships among some of the variables thought to be related to press freedom (defined as freedom from government controls). The data used here were collected at four points in time--1950, 1960, 1965 and 1966. A structural model was devised to help specify a pattern of relationships which hopefully corresponds to actual causal processes in the real world.[7] This study was undertaken in the belief that creating and testing such a model is the next step toward building theory in an area comprised mainly of isolated empirical generalizations.

THE MODEL

In addition to those studies arguing that press freedom is systematically related to various social, economic and political indicators, several scholars interested in mass communication and national development have suggested patterns of relations among some of the variables found to be related to press freedom. This section attempts to bring together these two areas of study (press freedom and national development) in one theoretical model of press freedom development.

Anthropologist Meggers argues that increased resources of a society, primarily increased food production, result in increased population size and concentration, and vice-versa, and that increased population size and concentration, along with other factors, produces an increased sociopolitical and technological cultural level.[8]

Lerner, starting with increased population size and concentration, his measure of urbanism, maintained that "urbanization has tended to increase literacy; rising literacy has tended to increase media exposure; increasing media exposure has 'gone with' wider economic participation (per capita income) and political participation (voting)."[9] Lerner writes that this same basic model "reappears in virtually all modernizing societies on all continents of the world, regardless of variations in race, color, creed . . .,"[10] and later he argues that democratic government comes late historically "and typically appears as a crowning institution of the participant society."[11] In short, Lerner's model suggests these causal relations:

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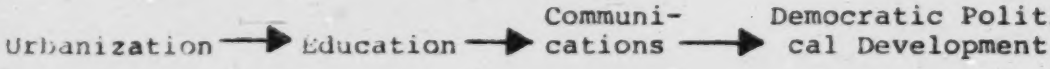
Schramm also maintains that mass media development "runs parallel to the development of other institutions of modern society, such as schools and industry, and is closely related to some of the indices of general social and economic growth, such as literacy, per capita income, and urbanization."[12] However, he declines to specify any causal relations among these variables. In fact, in an earlier work, he argues that "whether information creates some of the other structures and forms of society, or the other structures and forms of society create a certain stage of communication development, is a futile argument."[13]

Three years later, in spite of these words, Schramm and Ruggels attempted to isolate some causal relationships among these variables using cross-lagged correlation on data collected in 1950-51 and in 1960-61 from 23 less developed countries. They found that urbanization, literacy, gross national product and mass media development seem to be related in different ways in different developing regions of the world.[14]

In the same year as the Schramm-Ruggels study (1967), political scientists McCrone and Cnudde proposed the following model of democratic political development:



This model was partially confirmed using the Simon-Blalock technique of comparing actual and predicted correlations for causal inference, and fully confirmed by computation of path coefficients from the original correlation coefficients.[15]

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Rogers argues that literacy, mass media exposure and cosmopoliteness (individual urbanism) are antecedent variables in modernization process and that through the intervening variables of empathy, achievement motivation, and fatalism, they lead to innovativeness, political knowledge and aspirations.[16]

Bishop found, through the Simon-Blalock technique for causal inference, that among his Peruvian respondents greater media use led to increased political knowledge, which in turn led to an increased democratic political orientation, or support for democracy.[17] Thus, on a more micro-level, his results support the findings of Lerner, and McCrone and Cnudde, that increased mass communication development leads to increased political participation or democratic political development.

Although the studies cited above have concentrated only on the patterns of mass media development and development of political participation, it is not difficult to carry them one step further constructing a model of press freedom development. In 1952, Siebert suggested that "the more direct the accountability of the governors to the masses, the greater the freedom of the press."[18] He also suggested that "the area of freedom contracts and the enforcement of restraints increases as the stresses on the stability of the government and of the structure of society increase."[19]

Considering these studies and several others, the following micro-level model of press freedom development is proposed:

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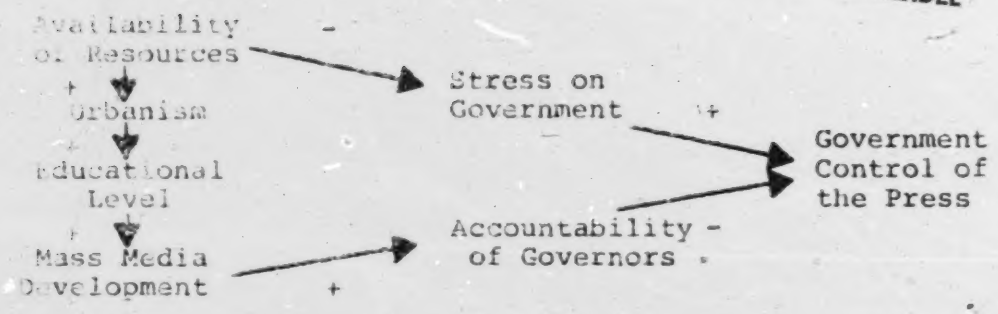

In this model, the primary exogenous variable is availability of resources. In accordance with Meggers' theory, greater resources lead to increased population size and concentration, and vice-versa, and an increased population size and concentration leads to a higher sociopolitical and technological cultural level (and presumably to greater urbanism as defined in this study). Increased urbanism (or urbanization) leads to an increase in educational level, in accordance with the models of Lerner and McCrone, and an increase in education leads to greater mass media development.

In keeping with the models of Lerner, McCrone and Cnudde, Rogers and Bishop, increased media development leads to increased political knowledge, support for participatory government, and political participation and thus higher accountability of governors.

Greater accountability of governors leads to less government control of the press (or more press freedom) and increased stress on government leads to more government control of the press (or less press freedom) in accordance with Siebert's hypotheses.

In addition, greater availability of resources leads to less stress on government, in accordance with Adelman and Morris' finding of a positive relation between per capita gross national product and political stability,[20] and Terrell's finding of a moderately strong

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relationship between level of economic development of a [illegible] and political instability.[21] This relationship is also consistent with Schramm's observation that increased economic development is likely to result in greater political stability and a lower rate of social change, which "provides the conditions under which greater press freedom is feasible . . ."[22]

THE VARIABLES

1. Press Freedom. After an extensive review of various definitions of press freedom, mostly British and American, it was found that the concept seems to be defined in three basically different ways: (1) as the relative absence of governmental restraints on the media; (2) as the relative absence of governmental and all other restraints on the media; and (3) as not only the absence of restraints on the media, but also the presence of those conditions necessary to ensure the dissemination of a diversity of ideas and opinions to a relatively large audience, such as an enforced right of access to newspapers and radio stations.[23]

In the first two definitions, press freedom is clearly conceived of, in the words of Clark and Blankenburg, as "a negative, [illegible] idea."[24] In the third, it is seen as the ability to [illegible] goal to further an end--a more "positive" definition.

In this study, press freedom is defined and measured in terms of the first approach--the relative absence of governmental restraints on the media. There are several reasons for choosing this definition. First, almost all the studies reviewed indicate that the relative absence of governmental controls is a necessary, if not sufficient, condition

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for the existence of press freedom; (2) because this study includes relatively developed and underdeveloped countries of the world, any measure of press freedom used must include some aspect of the concept by which all countries may be evaluated (and studies of some countries have not even begun to consider the more subtle problems of non-governmental pressures and the degree of access to the media) and (3) all of the worldwide evaluations of press freedom except Lowenstein's 1966 study have been based on the degree of government control over the mass media, and 15 out of 23 of Lowenstein's indicators of press independence are measures of amount of government restriction, according to Kent's factor analytic study.

For these reasons, this is a study of government control of the press. It does not take into account restrictions other than those initiated by the government of a country, and it does not take account of the actual free flow or diversity of opinions and ideas within the mass media of a country, although an inverse correlation is expected between the degree of government control and such diversity.

The amount of press freedom in 1950 is measured in this study using Schramm and Carter's Guttman scale of extent of government control on the media.[25] The items in this scale include government ownership of newspapers, economic pressures by government on mass media, political censorship, restrictions on free criticism of government policies, and government ownership of broadcasting facilities. Scores on this scale range from "0" (very little control) to "5" (very great control).

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Nixon's first study of world press freedom, based on data from 1953-60, is used as a measure of government control of the press in 1960. This scale includes six classifications, and scores range from "1" (very little or no government control) to "6" (complete government control).[26]

Government control of the press in 1965 is based on Nixon's second study, which includes data from 1964-65 and an expanded nine-point scale of government control of the press. Scores on this scale range from "1" (very little or no government control) to "9" (complete government control).[27] In both studies, Nixon employed the International Press Institute's definition of a free press system--one marked by the absence of government censorship or control--and in both studies he used expert judges to rate the various countries.

Press freedom in 1966 is gauged by Kent's assignment of factor scores to 94 countries of the world.[28] These scores are based on 15 of Löwenstein's 23 criteria for measuring press independence and critical ability. These 15 items loaded on one factor, indicating support for a unidimensional concept of government pressures on the press. Kent's factor scores were recoded into nine approximately equal groups, ranging from "1" (very little government control) to "9" (very great government control).

In general, these scales were chosen because they are the most well known among international communication experts, and because they include a greater number of countries (from 78 to 114) than do the few other international studies of press freedom such as those carried out by the Associated Press, the International Press Institute and the Inter American Press Association.

2. Accountability of Governors. After a review of some of the literature on democratization and political participation, accountability of governors in a given country was defined, briefly as executive and legislative dependence on public support and voting behavior.[29]

The indicators of the concept of accountability of governors came from Banks' Cross-Polity Time-Series Data and were selected via a principal-factor solution (with iterations) using Varimax rotation. The four indicators are: (1) type of selection of the effective executive (direct election, indirect election, or nonelective); (2) effectiveness of the legislature (effective, partially effective, ineffective, none); (3) competitiveness of the legislative nominating process (competitive, partially competitive, largely noncompetitive, no legislature); and (4) an aggregate competition index score based not only on the effectiveness of the legislature and the competitiveness of the nominating process, but also on the existence or competing factions within a legislature and the existence of recognized competing political parties.[30] (See Table 1 for the indicators of each key concept and the factor loadings for each year of data collection.)

TABLE 1 ABOUT HERE

These four variables all loaded rather highly (.50 to .90) on a single factor in each of the four separate analyses, and when added together as an index yielded reliability scores of .94, .94, .92 and .92 for the years 1950, 1960, 1965 and 1966. Validity scores were

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TABLE 1

MEASUREMENT OF CONCEPTS

Concept		Empirical Indicators (from Banks, Taylor and Hudson)	Factor Loadings* 1950	1960	1965	1966
1. Accountability of Governors	a.	Selection of Effective Executive	.71	.62	.50	.62
	b.	Effectiveness of Legislature	.69	.69	.74	.62
	c.	Competitiveness of Legislative Nominating Process	.90	.88	.90	.84
	d.	Competition Index Score	.79	.86	.89	.79
2. Stress on Government	a.	Number of Revolutions	--**	.44	.90	.57
	b.	Number of Protest Demonstrations	--	--	--	--
	c.	Number of Riots	--	.75	--	.53
	d.	Number of Armed Attacks	.72	.62	.77	.58
	e.	Number of Deaths from Domestic Violence	.71	--	.75	--
	f.	Number of Government Sanctions in Response to Perceived Threats	--	.54	.75	.68
3. Media Development	a.	Number of Radio Sets Per Capita	.86	.89	.77	.77
	b.	Newspaper Circulation Per Capita	.81	.86	.71	.79
4. Level of Education	a.	Primary and Secondary School Enrollment Per Capita	.85	.80	.92	.82
	b.	Total School Enrollment Per Capita	.84	.80	.92	.81
5. Communication	a.	Mail Per Capita	.84	.85	.75	.82
	b.	Telephones Per Capita	.91	.90	.82	.89
	c.	Highway Vehicles Per Capita	.84	.86	.87	.90
6. Availability of Resources	a.	Gross National Product Per Capita	--	.90	.89	.85
	b.	Gross Domestic Product Per Capita	.93	.95	.89	.85
	c.	Energy Consumption Per Capita	.93	.92	.92	.88
	d.	Revenue Per Capita	.87	.93	.89	.84
7. Government Control of Press	a.	Schramm and Carter's Scale (1950)	N/A	N/A	N/A	N/A
	b.	Nixon's Scale (1960)	N/A	N/A	N/A	N/A
	c.	Nixon's Scale (1965)	N/A	N/A	N/A	N/A
	d.	Lowenstein's Scale (1966) (as modified by Kent)	N/A	N/A	N/A	N/A

*These loadings are based on a principal factor analysis (with iterations) and Varimax rotation, with six factors specified. A separate factor analysis was carried out for each of the four sets of data (1950, 1960, 1965 and 1966).

**Indicates that the factor loading was not clearly high on one factor, so the indicator was not used in the scale.

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.87, .89, .88, and .83, and invalidity scores were .18, .14, .15 and .23.[31]

3. Stress on Government. Several writers, including Siebert, have suggested a systematic relationship between press freedom and amount of stress on government. Although most have not explicitly defined what they mean by stress, they do provide some clues.[32]

In general, stress is usually conceived of as a condition resulting from rapid change or from events which threaten the established pattern of life of a society or government. Political scientist Easton defined stress on a political system as "a condition that occurs when disturbances, external or internal in origin, threaten to displace the essential variables of a political system beyond their normal range and toward some critical limit."[33] Shaw and Bishop defined societal stress as external or internal pressures--war, economic or political disruptions, and/or rapid social change--impinging upon a particular national society.[34]

Considering these and other treatments of stress, the concept is defined in this study as any period of great demands on, or significantly lessened support for, the existing government, as indicated by any relatively rapid changes or disruptions to the established patterns of social interactions between the governors and the governed.

Stress is measured in terms of one indicator from Banks, number of revolutions, and five indicators from Taylor and Hudson's World Handbook of Political and Social Indicators--number of protest demonstrations, number of riots, number of armed attacks, number of

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deaths from domestic violence, and number of government sanctions in response to perceived threats.[35]

Two of these variables, armed attacks and deaths from domestic violence, loaded highly (.72 and .71) on one factor in the 1950 analysis; four variables--revolutions, riots, armed attacks and government sanctions--loaded moderately well (.44 to .75) in the 1960 analysis, four--revolutions, armed attacks, deaths and government sanctions--loaded highly (.75 to .90) on a single factor in the 1965 analysis; and four variables--revolutions, riots, armed attacks and government sanctions--loaded moderately well (.53 to .68) on one factor in the 1966 analysis. (See Table 1.)

When added together in an index, the reliability scores for the four years were .70, .73, .91, and .71. The validity scores were .80, .82, .92 and .83, and the invalidity coefficients were .06, .06, .03 and .02.

4. Mass Media Development. In general, the level of mass media development in a country has been defined and measured in past studies in terms of daily newspaper circulation and number of radio receivers per capita. Although some scholars have included number of cinema seats, number of television receivers, number of books and number of magazines per capita as indicators, daily newspaper circulation and number of radio receivers have been the most widely used.[36]

Schramm and Ruggels, who used these indicators in their study of mass media development, point out that newspaper circulation and radio statistics are "the figures most widely available and most readily

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comparable, and it is easy to demonstrate that they correlate clo with the growth of transmitting systems (e.g., newspapers and broadcasting stations) and with availability of media material a equipment (e.g., newsprint, printing presses, electronic equipmen electric mains, etc.).[37]

In this study, mass media development is defined as the level of availability of mass communication products per person in any given country. This definition does not include consideration the type or quality of information conveyed by the media, but does indicate the general availability of such information.

Two indicators from Banks were used to measure the level o media development--number of radio sets per capita and newspaper circulation per capita.[38] These variables loaded highly (.71 to .89) on a single factor in each of the four analyses. (See Table The reliability scores for the index were .92, .93, .91 and .88 t 1950, 1960, 1965 and 1966 respectively. The validity coefficien were .87, .92, .82 and .86, and the invalidity scores were .15, .0 .23 and .15.

5. Level of Education. Education has been used in various studies of mass communication and development as a key variable in the process of social, economic and political development. Vario measures of education and explanations of its role in national development have been proposed.[39]

While some scholars have defined level of education in ter of literacy, others have clearly distinguished between the two

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concepts. Of those who go beyond the dichotomous measure of literacy in assessing level of education, most rely on the percent of population enrolled in differing levels of schools.[40]

In this study, level of education is defined as the relative effort a society is exerting toward educating its population at a given time. Therefore, school enrollment ratios are used as indicators. In particular, two indicators from Banks are used--primary and secondary school enrollment per capita, and total school enrollment per capita.[41] These variables loaded highly (.80 to .92) on one factor in all four analyses, and yielded high reliability scores (.96, .94, .96 and .93). (See Table 1.) Validity scores were also high (.85, .80, .92 and .82), but invalidity scores were also fairly high (.25, .30, .11 and .26).

6. Urbanism. Several writers interested in the subject of urbanism and economic development have defined urbanism, or urbanization, in terms of population migration to cities and the concentration of people within cities. However, in an extensive review of the literature on urbanism and urbanization, Shaw detected two basically different processes of urbanism--one of concentration and one of radiation:

> The one emphasizes the occupancy, by an increasing number of people, of areas that are put to distinctive uses characterized as urban. The other focuses on the impact of the assumed distinctive culture of such settlements on its own inhabitants and/or on those in outlying areas.[42]

Shaw distinguished urbanization from industrialization and argued that "It is the quantity and the variety of communication, I submit, not the fact of industrialization that are the major criteria

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of urbanism.[43] He defined urbanism as "a continuing public participation in multiple and diverse but interconnected institutionalized information networks, producing cumulatively, an extensive range of frequent, heterogeneous messages."[44] And urbanization was defined as "the increasing urbanism of a human organism or of a social system."[45]

Shaw suggested that one way of operationally defining urbanism would be to employ "such available data as volume of mail or number of phone calls, with due attention being paid to 'the necessity for contextual operational definitions' . . ."[46]

Several other writers have also suggested that degree of urbanism is related to amount of participation in multiple communication networks, including Frey in a 1963 study of political development and communications in Turkey, and Rogers in his book on modernization among peasants.[47]

In this study, Shaw's definition of urbanism is adopted on the grounds that those scholars who define and measure urbanism and urbanization in terms of the concentration of population are really trying to tap the amount of participation in multiple information networks, and that this participation is what chiefly distinguishes the interests, knowledge and attitudes of relatively urban from relatively rural inhabitants.

Urbanism is measured in this study by an index composed of three indicators from Banks: volume of mail per capita, number of telephones per capita, and number of highway vehicles per capita.[48] These variables all loaded highly (.75 to .91) on one factor in each

analysis. (See Table 1.) Reliability coefficients for the index were .95, .94, .94 and .95, and validity scores were .92, .91, .84 and .91 for the four years. Invalidity scores were .11, .11, .23 and .11.

7. Availability of Resources. Resources of a society--human, natural and man-made--have long been thought to have an effect on the life style of its inhabitants and even on its cultural level. In sociological studies of national development, the term "resources" usually refers to the relative supply of material goods available in a society, or as Lerner puts it, "the production, distribution, and consumption of wealth."[49] Lerner, along with several other scholars of various disciplines interested in national development, operationalizes availability of resources chiefly in terms of two indicators--national income and per capita income.[50]

Considering past studies, availability of resources is defined in this study as the relative supply of material goods per person in a country, including such diverse "goods" as food, shelter, clothing, transportation and energy. This variable is measured with an index composed of four indicators from Banks: gross national product per capita, gross domestic product per capita, energy consumption per capita, and revenue per capita.[51] These indicators all loaded highly (.84 to .95) on a single factor in each of the four analyses, and the index formed from adding them together resulted in high reliability scores (.97, .98, .97 and .98) for 1950, 1960, 1965 and 1966. (See Table 1.) Validity scores were also high (.95, .97, .93 and .89), and invalidity coefficients were fairly low (.07, .04, .09 and .19).

METHOD

Although the experiment is the traditional and preferable approach to constructing structural models, since changes in variables are controlled, sociological studies such as this one are rarely amenable to experimental analysis because of ethical and practical problems. The next best strategy, according to Heise, Chaffee and others, is to collect data over time, using a longitudinal study design and cross-lagged correlation or path analysis to analyze relationships among variables.[52]

The object in such an analysis is not just to find what correlates with what, but rather to specify the network of causal paths that exist between variables and to identify the parameters of causation so that one knows how changes in one variable affect the values of the other variables in the system under consideration.

In this study, the concepts of concern are measured on the national level. This is due to the organization of the available data and is justified, in part, by Fischer's observation that:

> There are, of course, many useful particular problems which can and should be conceptualized in terms of the nation-state--mostly political and legal problems, for by definition a nation-state is a political and legal group. But there are many other problems which should be approached differently--problems about religious, economic, social or cultural groups, which rarely coincide with the nation-state.[53]

Since the amount of government control of the press is both a political and a legal problem, the use of the nation-state as a unit of analysis seems justified in this study.

If one is to analyze relationships among variables at this macro-level, there are basically two approaches available: the

configurative and the cross-national. In the configurative approach, the data from each political system are analyzed separately, noting the relationships between conditions and attributes of a given political system. The cross-national approach differs significantly from the configurative approach in that political systems are analyzed simultaneously. That is, each political system is thought of as a case of the universe of political systems, and data from some samples or from all political systems are analyzed together, rather than each system being analyzed separately.

As Gillespie points out, in comparative politics the configurative approach has been by far the most frequently employed for the task of linking conditions with attributes of political systems.[54] But the advantage of the cross-national approach is that it provides for empirical generalization, whereas the configurative approach does not have the capacity of immediate empirical generalization, since it is an example of a single-case analysis. Of course, in the cross-national approach, fewer variables usually are considered and some of the in-depth analysis of the configurative approach may be lost.

This study adopts the cross-national approach for three basic reasons: (1) this writer is quite interested in developing theoretical propositions which hold across time and space; (2) most of the recent empirical studies of press freedom have been carried out with the cross-national approach, and (3) most of the variables which seem to be related to amount of government control of the press have been measured using the cross-national approach.

As pointed out in the preceding section, the data used in this study come from a variety of sources, including studies of press freedom by Schramm and Carter, Nixon and Lowenstein, and two collections of cross-national data compiled by Banks and by Taylor and Hudson. Reasons for using the press freedom studies were given in the previous section. The Banks and Taylor data were chosen because they are the most comprehensive and up-to-date collections among the 17 sets of cross-national time-series data currently available in the Inter-University Consortium for Political Research Guide for 1973-74. (See Appendix for the 137 countries included in these studies.)

Of course, there are definite problems in working with aggregate cross-national data. Such data can only be taken as rough estimates of the conditions prevailing in any given country at any given time. However, if the purpose of using such data is to identify the patterns of relationships among concepts rather than to determine the precise functional relationships (in mathematical terms), then such data is useful, since Heise has shown that even low reliability measures are not likely to obscure general patterns of relationships.[55]

In fact, Kaplan, Campbell and Heise have argued that patterns of relationships are a key to explanation and understanding.[56] As Kaplan puts it:

> Now, there are two accounts of the reasons which provide understanding, and thereby explanation. I call them the pattern model of explanation and the deductive model. Very roughly, we know the reason for something either when we can fit it into a known pattern, or else when we can deduce it from other known truths. . . . The pattern model may more easily fit explanations in early stages of inquiry, and the deductive model explanations in later stages.

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> According to the pattern model, then, something is explained when it is so related to a set of other elements that together they constitute a unified system. We understand something by identifying it as a specific part in an organized whole. . . . The deductive model has the advantage of being formulated with incomparably greater exactness, but, as its proponents, I am sure, would be the first to agree, precision isn't everything.[57]

Kaplan and Heise seem to agree that once one has identified a structure, or pattern, one can begin to explain the variation of the elements within that structure. Heise notes that the kind of linkages necessary for prediction are less restrictive than those needed for explanation. That is, one can predict with simple correlations, but one must know direction for explanation and understanding.

In view of these observations on the pattern model of explanation, it was decided that path analysis over time would be used to analyze the relationships among the key variables. Basically, path coefficients indicate the degree of change in the dependent variable, given a one-unit change in the independent variable, whereas correlation coefficients indicate the degree of covariation between two variables. In other words, a path coefficient represents the direct impact of one variable upon another.[58]

In addition to making various assumptions outlined in the preceding footnote, one must also consider sources of extraneous variation in the data when using path analysis over time, including measurement error and the problem of correlated unmeasured variables, or so-called disturbances, which are due to imperfect determination of a dependent variable by one or more independent

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variables. Given the notoriously low reliability of macro-level cross-national statistics, and the high intercorrelations among variables, these are very real problems.

However, Heise has shown that "even though the two-wave model does not yield the actual values of the system parameters when measurements are imprecise, it might give a set of numbers that could be used for causal inference."[59] In several simulation studies carried out with randomly generated data, Heise demonstrates that even unreliable measures (those with reliabilities of .50 to .64) "do not eliminate the utility of the two-wave path model for causal inference although errors in measurement do increase the chance of erroneous conclusions."[60]

As for the assumption that time 2 disturbances be uncorrelated with variables at time 1, Heise points out that "this assumption almost inevitably is violated in longitudinal data."[61] However, even using measures with fairly low reliabilities (.50 to .64) and allowing for "noticeable correlations" between time 1 variables and time 2 disturbances, the correlation between estimated values and true values of Heise's path coefficients was .99.[62] Heise concludes that "even though the parameter estimates are biased when imprecise measures are used, the relative values of the estimates parallel very closely the relative values of the true parameters, and so the pattern of estimates can be examined to obtain information about the pattern of true parameters."[63]

With regard to both measurement error and correlated disturbances, Heise argues that "either measurement errors or

disturbance correlations prevent one from obtaining exact estimates of system parameters, but both of these conditions combined do not negate the possibility of making causal inferences of a more qualitative nature."[64]

Therefore, given that cross-national macro-level data are fairly unreliable and that most variables are notably intercorrelated over the 16-year time period considered here, Heise's path model for two-wave panel analysis still seems to be a useful tool for making causal inferences in this study.

Applying Heise's Model

When dealing with more than two variables over time, Heise points out that it is necessary to carry out a series of multiple regression analyses to obtain the estimates of the path coefficients. Each variable in the model is treated as a dependent variable, and its time 2 value is regressed on the time 1 values of the other variables, including the time 1 value of the dependent variable itself. This procedure is continued until the time 2 values of each variable in the system have been treated as dependent variables in regression analyses. The standardized partial regression coefficients resulting from these analyses are estimates of the path coefficients.[65]

The first step in applying Heise's model, then, is to determine which variables are to be included in the system. The model presented earlier in this paper suggests seven--availability of resources, urbanism, educational level, mass media development, stress on government, accountability of governors and government control of the press. To check on the signs and directions of the direct

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influences of these variables upon each other, a series of multiple regression analyses was carried out, taking each time 2 value of each variable as dependent across four differing time periods (1950-66, 1950-60, 1960-66 and 1965-66), first for all countries included in the study and then for each of six regions of the world found to be socially, economically, politically and culturally similar in an earlier study by Farace.[66] This procedure follows Pelz and Lew's recommendation that one obtain more than two waves of data when causal lag periods are unknown, and Shaw's suggestion that regional patterns in communication development may be "more tenable than Lerner's supposedly universally applicable model."[67]

Farace's regions (Latin America, North America/Western Europe, North Africa/Middle East, Central and South Africa, Asia, and Communist East Europe) were chosen over more traditional geographic areas because these regions are based on 54 measures of national characteristics, including social, economic, political, communication and cultural indicators, and it seems clear that such characteristics are not always strictly linked to traditional geographic divisions of the world.

FINDINGS AND CONCLUSIONS

In some cases, regression analyses could not be completed for all time periods, due to not enough valid cases or to the computational problem of a negative residual sum of squares which results in meaningless regression coefficients. However, valid coefficients for at least two time periods were obtained for all countries and for each of the six world regions.

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For the sake of keeping an already lengthy paper from becoming entirely too long, the 19 path diagrams are not included here, but may be obtained from the writer. The results of these path analyses are summarized in Table 2, which indicates the percent of support for the seven predicted paths in the model for all countries in the study analyzed together and for each of the six regional systems. In addition, this table shows the average percent of support for the theoretical model as a whole (along the bottom) and the average percent of support for each predicted path (along the right side).

TABLE 2 ABOUT HERE

By looking down the columns of Table 2, one can see that the original model is most consistently supported in the North American/ Western European countries and in the Latin American countries. This finding calls attention to the Western backgrounds of most of the scholars reviewed in this study, and suggests that their models and hypotheses may have been influenced by their exposure to Western institutions and Western patterns of national development.

The two most supported individual paths were those from mass media development to accountability of governors and from accountability of governors to government control of the press. There was support in every area except Asia for the positive path from media development to accountability of governors, suggesting that mass communication development may indeed play an important role in the growth of participant forms of government in many areas of the world.

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TABLE 2

SUPPORT FOR THE THEORETICAL MODEL (ALL TIME PERIODS)

Predicted Paths	Percent Support*							Average Percent Support for Each Path
	All Countries (N = 120)	Latin America (N = 16)	N. Amer./ W. Europe (N = 10)	N. Africa/ Mid-East (N = 20)	Central & S. Africa (N = 18)	Asia (N = 13)	Communist E. Europe (N = 11)	
Resources $\xrightarrow{+}$ Urbanism	0	50[a]	50[a]	0	50	0	100[b]	36
Urbanism $\xrightarrow{+}$ Education	0	50[a]	0	0	0	0	0	7
Education $\xrightarrow{+}$ Media Development	0	25	25	50	0	0	0	14
Media Development $\xrightarrow{+}$ Accountability of Governors	33	50[a]	75[c]	50	50	0	50	44
Accountability of Governors $\xrightarrow{-}$ Government Control of Press	33	50[a]	25	50	50	50	50	44
Resources $\xrightarrow{-}$ Stress	33	25	75[c]	50	50	50	0	41
Stress $\xrightarrow{+}$ Government Control of Press	0	25	75[c]	0	0	100[b]	0	29
AVERAGE PERCENT SUPPORT FOR THE THEORETICAL MODEL	14	39	46	29	29	29	29	

*Support means that both the sign and the magnitude of each path coefficient (as compared to the magnitude of the return coefficient) suggest the causal directionality specified in each path of the theoretical model.

[a]indicates $p < .19$

[b]indicates $p < .05$

[c]indicates $p < .04$

In addition, there was some support in every one of the six regions and in all countries taken together for the negative path from accountability of governors to government control of the press, suggesting that even after the effects of the other variables in the model are taken into account, an increase in accountability of governors often leads to a decrease in government control of the press, supporting Siebert's observation that "the more direct the accountability of the governors to the masses, the greater the freedom of the press."[68]

These findings should be interpreted cautiously, of course, due to the small number of countries in each region, the limited time coverage of the data, and the modest supporting percentages. However, even though the supporting percentages are not especially high, Galtung has pointed out that between any two variables, there are nine patterns of possible causal relationships, assuming that each path can be negative, positive or zero in value.[69] If only the one pattern out of nine clearly supporting the theoretical model were chosen, the probability of finding support for the model by chance, assuming that each of the nine patterns were equally probable, would be about .11. However, there are three possible patterns out of the nine which could support an original predicted path, if the value of the return path were ignored. In this case, the probability of a predicted path being supported by chance would be about .33.

In Table 2, support for a predicted path means not only that the sign of the predicted path is correct, but also that the value of the return path is not equal to or greater than the value of the

predicted path. Thus, the probability of any predicted path being supported by chance falls somewhere between .11 and .33. Taking the midpoint of this interval (.22) as an estimate of the actual probability of a given predicted path being supported by chance in any one analysis, it becomes apparent that the probability of a given path being supported by chance in more than one analysis is considerably less than .22. In fact, the probability of a given path being supported by chance in two independent analyses is about .04, in three analyses about .01 and in four analyses, about .002.

In addition to support for the paths linking media development, accountability of governors and government control of the press, the negative path from resources to stress was supported to some extent in all countries taken together and in every region except Communist East Europe, indicating that in many cases an increase in resources was followed by a decrease in stress, as predicted. The predicted positive path from stress to government control of the press was strongly supported in the North American/Western European countries and in Asia, but received little or no support in the other areas of the world, raising some doubts about the universality of suggestions by Siebert, Field, Stevens, Schramm and others that an increase in stress always leads to an increase in government control of the press.

Little support was found for the first part of Lerner and McCrone's developmental model, which specifies that greater urbanism leads to increased education, which in turn leads to increased mass media growth. This lack of support may be due to the relatively

short time span covered in this study, but further research involving longer time periods is needed to tell if these relations are long-term only or if they simply do not hold true in various areas of the world.

In the Communist countries, strong support was found for Meggers' suggestion that increased resources lead to increased urbanism, and moderate support for this sequence was found in several other areas of the world.

In short, the findings of this study indicate moderate support for some of the causal relations suggested in the theoretical model of press freedom development, especially those linking increases in mass media development to increases in accountability of governors, and increases in accountability of governors to decreases in government control of the press. This support suggests that growth of mass communication is important to the growth of participant forms of government and to greater freedom of expression. It also suggests that an increase in resources, or economic productivity, may lead to less stress on the political system of a country, and less stress may, along with greater accountability of governors, lead to less government control of the media, especially in the North American/Western European and Asian countries of the world.

The results of this study also suggest that path analysis over time may be usefully employed to reveal some non-obvious

relationships among variables which correlational studies would miss, especially if these path analytic techniques are coupled with data collected over longer periods of time.

NOTES

[1]The Commission on Freedom of the Press, A Free and Responsible Press (Chicago: University of Chicago Press, 1947), p. 6.

[2]Lenin o Pechati (Moscow, 1959), pp. 578-80; Mark W. Hopkins, "Three Soviet Concepts of the Press," in Heinz-Dietrich Fisher and John C. Merrill, International Communication: Media, Channels, Functions (New York: Hastings House, 1970), p. 31.

[3]Hopkins, p. 40.

[4]See Fredrick S. Siebert, Freedom of the Press in England: 1476-1776 (Urbana: University of Illinois Press, 1952), pp. 10-11; Vincent Farace and Lewis Donohew, "Mass Communication in National Social Systems: A Study of 43 Variables in 115 Countries," Journalism Quarterly, 42 (Spring 1965), pp. 259-60; Raymond B. Nixon, "Factors Related to Freedom in National Press Systems," Journalism Quarterly, 37 (Winter 1960), p. 22; Raymond B. Nixon, "Freedom in the World's Press: A Fresh Appraisal with New Data," Journalism Quarterly, 42 (Winter 1965), p. 7; Ralph L. Lowenstein, "World Press Freedom, 1966," Freedom of Information Center Report No. 181 (Columbia: School of Journalism, University of Missouri, May, 1967), pp. 1, 7; John D. Stevens, "Freedom of Expression: New Dimensions," Mass Media and the National Experience, ed. by Ronald T. Farrar and John D. Stevens (New York: Harper & Row, 1971), pp. 17, 26; Sunwoo Nam, "A Comparative Study of Freedom of the Press in Korea, Taiwan, and the Philippines in the 1960's," Unpublished Ph.D. Dissertation, University of Wisconsin, 1969, p. 180; Sunwoo Nam and Inwhan Oh, "Freedom of the Press as a Function of Subsystem Autonomy and as an Antithesis of Development," Unpublished Paper Presented at the Annual Association for Education in Journalism Convention, Fort Collins, Colorado, August, 1973, pp. 1-3; Leonard R. Sussman, "Mass Communication and Press Freedom: A World View," Mass Comm Review," 1 (August, 1973), p. 18; Donald M. Gillmor, "Freedom in Press Systems and the Religious Variable," Journalism Quarterly, 39 (Winter 1962), pp. 15, 22, 26.

[5]Daniel Lerner, The Passing of Traditional Society (Glencoe, Ill.: The Free Press, 1958), p. 56.

[6]Nixon, "Freedom in the World's Press," p. 7.

[7]See David R. Heise, "Problems in Path Analysis and Causal Inference," Ch. 2 in Sociological Methodology 1969, ed. by Edgar F. Borgatta (Washington, San Francisco: Jossey-Bass, 1969).

[8] Betty J. Meggers, "Environmental Limitation on the Development of Culture," in J. Bressler, ed., Environments of Man (Reading, Mass.: Addison-Wesley, 1968), pp. 19-43.

[9] Lerner, The Passing of Traditional Society, p. 46.

[10] Lerner, The Passing of Traditional Society, p. 46.

[11] Daniel Lerner, "Toward a Communication Theory of Modernization," Communications and Political Development, ed. by Lucian W. Pye (Princeton, N.J.: Princeton University Press, 1963), p. 342.

[12] Wilbur Schramm, "Communication and Change," Communication and Change in the Developing Countries, ed. by Daniel Lerner and Wilbur Schramm (Honolulu: East-West Center Press, 1967), p. 7.

[13]Wilbur Schramm, Mass Media and National Development (Stanford, California: Stanford University Press, 1964), p. 41.

[14] Wilbur Schramm and W. Lee Ruggels, "How Mass Media Systems Grow," Communication and Change in the Developing Countries, ed. by Daniel Lerner and Wilbur Schramm (Honolulu: East-West Center Press, 1967), p. 73.

[15] Donald J. McCrone and Charles F. Cnudde, "Toward a Communications Theory of Democratic Political Development: A Causal Model," American Political Science Review, 61, pp. 76-8.

[16] Everett M. Rogers, Modernization Among Peasants: The Impact of Communication (New York: Holt, Rinehart and Winston, 1969), p. 50.

[17] Michael E. Bishop, "Media Use and Democratic Political Orientation in Lima, Peru," Journalism Quarterly, 50 (Spring 1973), pp. 60-7.

[18] Siebert, Freedom of the Press in England, p. 10.

[19] Siebert, Freedom of the Press in England, p. 10.

[20] Irma Adelman and Cynthia Taft Morris, "A Factor Analysis of the Interrelationship Between Social and Political Variables and per capita Gross National Product," Macro-Quantitative Analysis, ed. by John V. Gillespie and Betty A. Nesvold (Beverly Hills, Calif.: Sage Publications, 1971), p. 341.

[21] Louis M. Terrell, "Societal Stress, Political Instability, and Levels of Military Effort," Journal of Conflict Resolution, XV (September, 1971), p. 340.

[22] Wilbur Schramm, "Communication Development and the Development Process," Communications and Political Development, ed. by Lucian W. Pye (Princeton, N.J.: Princeton University Press, 1963), p. 55.

[23] See, for example, Ralph E. McCoy, Freedom of the Press. An Annotated Bibliography (Carbondale, Ill.: Southern Illinois University Press, 1968); Robert P. Knight, "The Concept of Freedom of the Press in the Americas," Unpublished Ph.D. Dissertation, University of Missouri at Columbia, January, 1968; Haig A. Bosmajian, The Principles and Practice of Freedom of Speech (Boston: Houghton Mifflin, 1971); Charles W. Hobart, "Freedom, A Neglected Area for Social Research," Intercommunication Among Nations and Peoples, ed. by Michael H. Prosser (New York: Harper & Row, 1973), pp. 469-82; and Jerome A. Barron, Freedom of the Press for Whom? The Right of Access to Mass Media (Bloomington: Indiana University Press, 1973).

[24] David G. Clark and William B. Blankenburg, You & Media: Mass Communication and Society (San Francisco: Canfield Press, 1973), p. 108.

[25] Schramm and Carter, "Scales," pp. 5-7.

[26] Nixon, "Factors Related," pp. 18-22.

[27] Nixon, "A Fresh Appraisal," p. 6.

[28] Kent, "Freedom of the Press," p. 72.

[29] See, for example, Seymour Martin Lipset, "Some Social Requisites of Democracy," American Political Science Review, 53 (1959), pp. 69-105; W. Phillips Davison, International Political Communication (New York: Frederick A. Praeger, 1965), p. 77; Gabriel A. Almond and G. Bingham Powell, Jr., Comparative Politics: A Developmental Approach (Boston: Little, Brown and Company, 1966), pp. 259-60; and John V. Gillespie, "Introduction: Studies on Democratization," Macro-Quantitative Analysis, ed. by John V. Gillespie and Betty A. Nesvold (Beverly Hills, Calif.: Sage Publications, 1971), pp. 376-77.

[30] Banks, Cross-Polity Time-Series Data, pp. 3-55 and 283-97.

[31] For a discussion of the meaning of these coefficients and computational procedures, see David R. Heise and George W. Bohrnstedt, "Validity, Invalidity, and Reliability," Sociological Methodology 1970, ed. by Edgar F. Borgatta and George W. Bohrnstedt (San Francisco: Jossey-Bass, 1970), pp. 104-30. For documentation on a computer program to calculate these coefficients, see Ervin H. Young, "OMGPS," Unpublished Paper, Institute for Research in Social Science Statistical Laboratory, Manning Hall, University of North Carolina at Chapel Hill, February, 1973.

[32] See, for example, Marshall Field, Freedom Is More Than a Word (Chicago: University of Chicago Press, 1945), p. 109; Donald L. Shaw and Stephen W. Brauer, "Press Freedom and War Constraints: Case Testing Siebert's Proposition II," Journalism Quarterly, 46 (Summer 1969), pp. 251-3; John D. Stevens, "Press and Community Toleration: Wisconsin in World War I," Journalism Quarterly, 46 (Summer 1969), pp. 255-9; and Fred Powledge, The Engineering of Restraint (Washington, D.C.: The Public Affairs Press, 1971), p. 1.

[33] David Easton, A Framework for Political Analysis (Englewood Cliffs, N.J.: Prentice-Hall, 1965), p. 94.

[34] Donald L. Shaw and Michael E. Bishop, "Editorial Function and Societal Stress," Journalism Quarterly, 49 (Autumn 1972), pp. 582-5.

[35] Banks, Cross-Polity Time-Series Data, pp. 283-97; and Taylor and Hudson, World Handbook, pp. 59-123.

[36] See, for example, Lerner, The Passing of Traditional Society, pp. 53, 60, 86, 415 and 426-7; Nixon, "Factors Related," p. 17, and "A Fresh Appraisal," pp. 7-8; Schramm and Carter, "Scales," p. 3; Wilbur Schramm, Mass Media and National Development (Stanford, Calif.: Stanford University Press, 1964), pp. 94-5; and Farace and Donohew, "A Study of 43 Variables," p. 256.

[37] Schramm and Ruggels, "How Mass Media Systems Grow," p. 59.

[38] Banks, Cross-Polity Time-Series Data, pp. 255-82.

[39] See, for example, Nixon, "Factors Related" and "A Fresh Appraisal"; Schramm, "Communication Development and the Development Process," pp. 40-2; Schramm and Ruggels, "How Mass Media Systems Grow," p. 58; and Rogers, Modernization Among Peasants, pp. 51-2.

[40] See, for example, James N. Mosel, "Communication Patterns and Political Socialization in Transitional Thailand," Communications and Political Development, ed. by Lucian W. Pye (Princeton, N.J.: Princeton University Press, 1963), p. 191; David C. McClelland, "National Character and Economic Growth in Turkey and Iran," Communications and Political Development, p. 157; Schramm, Mass Media and National Development, pp. 110-12; and John T. McNelly, "Mass Communication and the Climate for Modernization in Latin America," Intercommunication Among Nations and Peoples, ed. by Michael H. Prosser, p. 360.

[41] Banks, Cross-Polity Time-Series Data, pp. 207-36.

[42] Eugene F. Shaw, "Urbanism as a Communication Variable," Unpublished Paper Presented to the Association for Education in Journalism, August, 1969, pp. 3-4.

[43] Shaw, p. 11.

[44] Shaw, p. 15.

[45] Shaw, p. 18.

[46] Shaw, p. 24.

[47] Frederick W. Frey, "Political Development, Power, and Communications in Turkey, Communications and Political Development, ed. by Lucian W. Pye (Princeton, N.J.: Princeton University Press, 1963), pp. 319-20; and Rogers, Modernization Among Peasants, pp. 52-3.

[48] Banks, Cross-Polity Time-Series Data, pp. 137-206 and pp. 237-56.

[49] Lerner, The Passing of Traditional Society, p. 66.

[50] See, for example, Nixon, "Factors Related," p. 16, and "A Fresh Appraisal," pp. 7-8; Schramm and Carter, "Scales," p. 3; Schramm, "Communication Development and the Development Process," pp. 42-3; Schramm and Ruggels, "How Mass Media Systems Grow," p. 58; Adelman and Morris, "A Factor Analysis," p. 333; and Farace and Donohew, "A Study of 43 Variables," p. 255.

[51] Banks, Cross-Polity Time-Series Data, pp. 99-136 and pp. 255-82.

[52] Heise, "Problems in Path Analysis," and "Causal Inference from Panel Data," Ch. 1 in Sociological Methodology 1970, ed. by Edgar F. Borgatta and George W. Bohrnstedt (San Francisco: Jossey-Bass, 1970; Steven H. Chaffee, "Longitudinal Designs for Communication Research: Cross-Lagged Correlation," Unpublished Paper Presented at the Annual Convention, Association for Education in Journalism, Carbondale, Illinois, August, 1972.

[53] See David Hackett Fischer, Historians' Fallacies: Toward a Logic of Historical Thought (New York: Harper & Row, 1970), pp. 236-37, for further discussion of some of the limitations of using the nation-state as a unit of analysis.

[54] John V. Gillespie and Betty A. Nesvold, eds., Macro-Quantitative Analysis (Beverly Hills, Calif.: Sage Publications, 1971), p. 14.

[55] Heise, "Causal Inference from Panel Data," pp. 12-20.

[56] Abraham Kaplan, The Conduct of Inquiry, pp. 332-36 Donald T. Campbell, "Natural Selection as an Epistemological Model," Ch. 3 in Raoul Naroll and Ronald Cohen, eds., A Handbook of Method in Cultural Anthropology (Natural History Press, 1970), pp. 78-80; and Heise, Lectures Delivered in Causal Inference and Theory Building Course, Fall 1972.

[57] Kaplan, The Conduct of Inquiry, pp. 332-33.

[58]Such coefficients are easily calculated by using standard multiple regression techniques, and the path coefficients are estimated by the standardized regression coefficients (betas), providing that one makes the assumptions of linearity, homoscedasticity, noncolinearity, and constancy and equivalence of causal relations. When using path analysis over time, it is also necessary to assume that there are no instantaneous effects in the system,

> that the lag periods for all relationships are about the same, that the time required to measure the variables at one point in time is less than the causal lag period, and that the time between measurements is about the same as the causal lag period. Heise points out that these assumptions need not be unduly restrictive. See Heise, "Causal Inferences from Panel Data," pp. 10-12.

[59] Heise, "Causal Inference ," p. 15.

[60] Heise, "Causal Inference ," p. 20.

[61] Heise, "Causal Inference ," pp. 20-21.

[62] Heise, "Causal Inference ," pp. 23-24.

[63] Heise, "Causal Inference ," p. 26. (Emphasis added.)

[64] By inferences of a qualitative nature, Heise is referring to the ability to determine which causal relations in a system are negligible, moderate or large, and the ability to compare the relative strengths of these relationships. See Heise, "Causal Inferences," p. 26.

[65]Heise, "Causal Inference," pp. 7-8.

[66]R. Vincent Farace, "Identifying Regional 'Systems' in National Development Research," Journalism Quarterly, 43 (Winter 1966), p. 760.

[67]Donald C. Pelz and Robert A. Lew, "Heise's Causal Model Applied," in Sociological Methodology 1970, ed. by Edgar F. Borgatta and George W. Bohrnstedt (San Francisco: Jossey-Bass, 1970), p. 36; and Eugene F. Shaw, "Communication Development: A Modest Proposal," Gazette, XVI (December 1970), p. 238.

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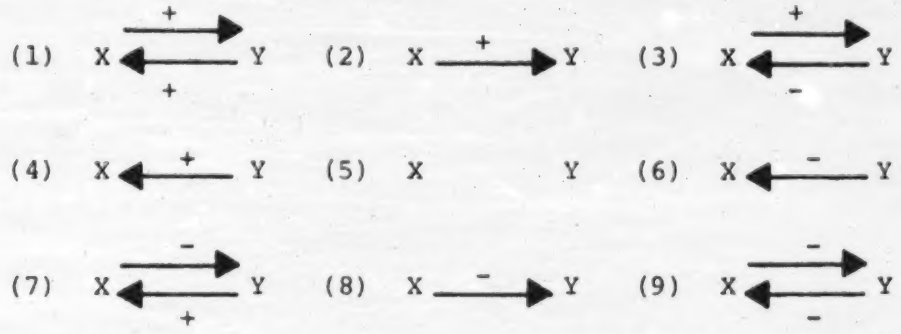
[68]Siebert, Freedom of the Press in England, p. 10.

[69]Johan Galtung, Theory and Methods of Social Research (New York: Columbia University Press, 1967), pp. 469-70. The nine possible patterns of causal relationships between two variables are:



APPENDIX

ALL COUNTRIES INCLUDED IN THE STUDY

1. Afghanistan
2. Albania
3. Algeria
4. Argentina
5. Australia
6. Austria
7. Barbados
8. Belgium
9. Bolivia
10. Botswana
11. Brazil
12. Bulgaria
13. Burma
14. Burundi
15. Cambodia
16. Cameroon
17. Canada
18. Central African Republic
19. Ceylon
20. Chad
21. Chile
22. China
23. Colombia
24. Congo-Brazzaville
25. Congo-Kinshasa
26. Costa Rica
27. Cuba
28. Cyprus
29. Czechoslovakia
30. Dahomey
31. Denmark
32. Dominican Republic
33. Ecuador
34. El Salvador
35. Ethiopia
36. Finland
37. France
38. Gabon
39. The Gambia
40. East Germany
41. West Germany
42. Ghana
43. Greece
44. Guatemala
45. Guinea
46. Guyana
47. Haiti
48. Honduras
49. Hong Kong
50. Hungary
51. Iceland
52. India
53. Indonesia
54. Iran
55. Iraq
56. Ireland
57. Israel
58. Italy
59. Ivory Coast
60. Jamaica
61. Japan
62. Jordan
63. Kenya
64. North Korea
65. South Korea
66. Kuwait
67. Laos
68. Lebanon
69. Lesotho
70. Liberia
71. Libya
72. Luxembourg
73. Madagascar
74. Malawi
75. Malaysia
76. Maldive Islands
77. Mali
78. Malta
79. Mauritania
80. Mexico
81. Mongolia

82. Morocco
83. Mozambique
84. Nepal
85. Netherlands
86. New Guinea
87. New Zealand
88. Nicaragua
89. Niger
90. Nigeria
91. Norway
92. Pakistan
93. Panama
94. Papua
95. Paraguay
96. Peru
97. Philippines
98. Poland
99. Portugal
100. Puerto Rico
101. Rhodesia
102. Romania
103. Rwanda
104. Saudi Arabia
105. Senegal
106. Sierra Leone
107. Singapore
108. Somalia
109. South Africa
110. Southern Yemen
111. Soviet Union
112. Spain
113. Sudan
114. Sweden
115. Switzerland
116. Syria
117. Taiwan
118. Tanzania
119. Thailand
120. Togo
121. Trinidad and Tobago
122. Tunisia
123. Turkey
124. Uganda
125. United Arab Republic
126. United Kingdom
127. United States
128. Upper Volta
129. Uruguay
130. Venezuela
131. North Vietnam
132. South Vietnam
133. Western Samoa
134. Yemen
135. Yugoslavia
136. Zambia
137. Zanzibar